

Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Thus, claim 1 has been amended to incorporate the subject matter of claim 4, as a result of which claim 4 has been cancelled.

The patentability of the presently claimed invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Thus, the rejection of claims 1-7 under 35 U.S.C. §103(a) as being unpatentable Ahmad in view of Elsser et al. is respectfully traversed.

Ahmad discloses a method for producing ascopyrone P, which comprises treating an aqueous solution of 1,5-anhydrofructose with aqueous alkaline solution such as NaOH at a temperature of 25°C, as noted by the Examiner.

Therefore, Ahmad fails to disclose the following features (i) and (ii) in amended claim 1 of the present application:

- (i) The pH of an aqueous solution of 1,5-anhydrofructose (to be referred to as “1,5-AF” hereinafter) is **2 to less than 7**.
- (ii) The aqueous solution of 1,5-AF is heated at a temperature of **100°C or higher**.

Since Ahmad merely discloses an aqueous **alkaline** solution (e. g. pH of 7.5 to 10) of 1,5-AF for the pH condition, this reference fails to suggest the acidic condition, i.e. , a pH of 2 to less than 7 which is the above feature (i) of the present invention.

Further, since Ahmad merely discloses a temperature of 25°C for the temperature condition, the reference fails to suggest a temperature of 100°C or higher which is the above feature (ii) of the present invention.

The Examiner admits these differences in pH and temperature conditions as between the present invention and the Ahmad reference, as apparent from the second full paragraph on page 3 of the Office Action.

Elsser et al. disclose a method for producing ascopyrone P, which comprises heating a solution of 1,5-AF with non-aqueous acid at an elevated temperature, for example 70°C, as noted by the Examiner.

Since Elsser et al. use a non-aqueous acid as described above, this reference does not teach an **aqueous** solution of 1, 5-AF. Therefore, it is technically unreasonable to combine Ahmad, who discloses a method involving an aqueous solution, with Elsser et al. who do not disclose a method involving an aqueous solution. In addition, Elsser et al. also fail to disclose or suggest the above features (i) and (ii) in amended claim 1 of the present application.

For these reasons, Applicants take the position that the Examiner has failed to establish a presumption of obviousness of the presently claimed invention.

The Examiner also takes the position that merely modifying the process conditions such as temperature and concentration is not a patentable modification absent a showing of criticality. In this regard, please see the attached Rule 132 Declaration of K. Yoshinaga, one of the present inventors.

As shown in the Declaration, the production yield of Ascopyrone P is very low under the experimental conditions disclosed by Ahmad (Run 1). When the reaction temperature is increased, the yield grows at 50°C (Run 2) and 75°C (Run 3), but the yield of Ascopyrone P is very low at the reaction temperature (100°C, Run 4). It is apparent from this that Ahmad does not teach the reaction conditions of the present invention (a pH of “2 to less than 7” and a reaction temperature of “100°C or higher”) under which Ascopyrone P can be obtained at a high yield, as shown in the present application.

Even when the reaction is carried out at the reaction temperature (70°C) disclosed by Elsser et al. (Run 6), the yield of Ascopyrone P was very low.

Accordingly, even if the Examiner has established a presumption of obviousness based on the Ahmad and Elsser et al. references, it is apparent that such presumption has been overcome by the showing set forth in the attached Declaration.

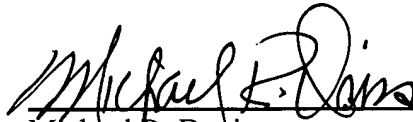
For these reasons, Applicants take the position that the presently claimed invention is clearly patentable over the applied references.

Therefore, in view of the foregoing amendments and remarks, it is submitted that the ground of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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By:

A handwritten signature in black ink, appearing to read "Michael R. Davis", written over a horizontal line.

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